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PAPERS
IN
MANUFACTURES.

N° I.
FINE PLAT.

The LARGE SILVER MEDAL was this Session given to Mr. W. COBBETT, of Kensington, for THE APPLICATION OF NATIVE ENGLISH GRASSES AS THE MATERIAL OF FINE PLAT. The following Communication on the selection and preparation of the Grasses, has been received from the Candidate, and Specimens of them in their unprepared, and prepared states, and manufactured into Plat, are placed in the Society's Repository.

SIR;

Kensington,
April 14, 1823.

1. **AGREEABLY** to your request, I now communicate to you a statement of those particulars which you wished to

possess, relative to the specimens of straw and of plat which I have, at different times, sent to you for the inspection of the Society.

2. That my statement may not come too abruptly upon those Members of the Society who have not had an opportunity of witnessing the progress of this interesting inquiry, I will take a short review of the circumstances which led to the making of my experiments.

3. In the month of June, 1821, a gentleman, a member of the Society, informed me, by letter, that a Miss Woodhouse, a farmer's daughter of Weathersfield, in Connecticut, had communicated to the Society a straw-bonnet of very fine materials and manufacture; that this bonnet (according to her account) was made from the straw of a sort of grass called *poa pratensis*; that it was unknown whether the same grass would grow in England; that it was desirable to ascertain whether this grass would grow in England; that, at all events, it was desirable to get from America some of the seed of this grass; and, that, for this purpose, my informant, knowing that I had a son in America, addressed himself to me, it being his opinion that if materials similar to those used by Miss Woodhouse could, by any means, be grown in England, the benefit to the nation must be considerable.

4. In consequence of this application I wrote to my son James (then at New York), directing him to do what he was able in order to cause success to the undertaking. On the receipt of my letter, in July, he went from New York to Weathersfield (about a hundred and twenty miles); saw Miss Woodhouse; made the necessary inquiry; obtained a specimen of the grass and also of the plat, which other persons at Weathersfield, as well as Miss Woodhouse, were in the habit of making; and, having acquired the necessary in-

formation as to cutting the grass and bleaching the straw, he transmitted to me an account of the matter, which account, together with his specimens of grass and plat, I received in the month of September.

5. I was now, when I came to see the specimen of grass, convinced that Miss Woodhouse's materials could be grown in England, a conviction, which, if it had not been complete at once, would have been made complete immediately afterwards by the sight of a bunch of bonnet-straw imported from Leghorn, which straw was shown to me by the importer, and which I found to be that of two or three sorts of our common grass, and of oats, wheat, and rye.

6. That the grass, or plants, could be grown in England, was therefore now certain, and, indeed, that they were in point of commonness, next to the earth itself. But, before the grass could with propriety be called materials for bonnet-making, there was the bleaching to be performed; and it was by no means certain that this could be accomplished by means of an English sun, the difference between which, and that of Italy or Connecticut, was well known to be very great.

7. My experiments have, I presume, completely removed this doubt. I think that the straw produced by me to the Society, and also some of the pieces of plat, are of a colour which no straw or plat can surpass. All that remains, therefore, is for me to give an account of the manner in which I cut and bleached the grass which I have submitted to the Society in the state of straw.

8. First, as to the season of the year, all the straw, except that of one sort of couch-grass, and the long coppice-grass, which two were got in Sussex, were got from grass cut in Hertfordshire, on the 21st of June. A grass headland in a wheat-field had been mowed during the fore part of the day;

and, in the afternoon, I went and took a handful here and a handful there out of the swaths. When I had collected as much as I could well carry, I took it to my friend's house, and proceeded to prepare it for bleaching according to the information sent me from America by my son ; that is to say, I put my grass into a shallow tub, put boiling water upon it until it was covered by the water, let it remain in that state for ten minutes, then took it out and laid it very thinly on a closely-mowed lawn in a garden. But, I should observe, that before I put the grass into the tub, I tied it up in small bundles or sheaves, each bundle being about six inches through at the butt-end. This was necessary in order to be able to take the grass, at the end of ten minutes, out of the water, without throwing it into a confused mixture as to tops and tails. Being tied up in little bundles, I could easily, with a prong, take it out of the hot water. The bundles were put into a large wicker-basket, carried to the lawn in the garden, and there taken out one by one, and laid in swaths as before mentioned.

9. It was laid very thinly ; almost might I say, that no stalk of grass covered another. The swaths were turned once a day. The bleaching was compleated at the end of seven days from the time of scalding and laying out. June is a fine month. The grass was, as it happened, cut on the longest day of the year ; and the weather was remarkably fine and clear. But the grass which I afterwards cut in Sussex, was cut in the first week of August ; and, as to the weather, my journal speaks thus :

August, 1823.

2nd. —Thunder and rain.—Began cutting grass.

3rd. —Beautiful day.

August, 1823.

- 4th. —Fine day.
- 5th. —Cloudy day.—Began scalding grass and laying it out.
- 6th. —Cloudy greater part of the day.
- 7th. —Same weather.
- 8th. —Cloudy and rather misty.—Finished cutting grass.
- 9th. —Dry, but cloudy.
- 10th. —Very close and hot.—Packed up part of the grass.
- 11th. —Same weather.
- 12th. } Same weather.
- 13th. }
- 14th. }
- 15th. —Hot and clear.—Finished packing up grass.

10. The grass cut in Sussex was as well bleached as that cut in Hertfordshire; so that it is evident, that we never can have a summer that will not afford sun sufficient for this business.

11. The part of the straw used for platting is that part of the stalk which is above the upper joint; that part which is between the upper joint and the seed-branches. This part is taken out, and the rest of the straw thrown away. But the whole plant must be cut and bleached; because, if you were to take off, when green, the part above described, that part would wither up to next to nothing. This part must die in company with the whole plant, and be separated from the other parts after the bleaching has been performed.

12. The time of cutting must vary with the seasons, the situation, and the sort of grass. The grass which I got in Hertfordshire, than which nothing can, I think, be more beautiful, was, when cut, generally in bloom; just in bloom. The wheat was in full bloom; so that, a good time for getting grass may be considered to be that, when the wheat is in bloom. When I cut the grass in Sussex the wheat was ripe,

for reaping had begun ; but that grass is of a very backward sort, and besides, grew in the shade, amongst coppice-wood, and under trees, which stood pretty thick.

13. As to the sorts of grass, I have to observe, generally, that in proportion as the colour of the grass is deep, that is to say, getting further from the yellow and nearer to the blue, it is of a deep and dead yellow when it becomes straw. Those kinds of grass are best which are in point of colour nearest to that of wheat, which is a fresh pale green. Another thing is the quality of the straw as to pliancy and toughness. Experience must be our guide here. I had not time to make a large collection of sorts, but those which I have sent you contain three sorts which are proved to be good. In my letter of the 3rd instant I sent you sixteen pieces of plat, and eight bunches of straw, having the seed-heads on, in order to show the sorts of grass. The sixteenth piece of plat was American. The first piece was from wheat cut and bleached by me ; the rest from grass cut and bleached by me. I will here, for fear of mistake, give a list of the names of the several sorts of grass, the straw of which was sent with my letter of the 3rd instant, referring to the numbers as placed on the plat and on the bunches of straw.

<i>Pieces of Plat.</i>		<i>Bunches of Straw.</i>		<i>Sorts of Grass.</i>
No. 1	.....	No. 1	.....	Wheat
2 }	.....	2 & 3	.....	{ Melica Cærulea ; or, Purple Melica Grass.
3 }	.....			
4 }	.....	4 & 12	.....	{ Agrostis Stolonifera ; or, Fiorin Grass ; i. e. one sort of Couch-Grass.
12 }	.....			
5 }	.....	5 & 10	.....	{ Lolium perenne ; or, Ray-Grass.
10 }	.....			
6 }	.....	6 & 11	.....	{ Avena flavescens ; or Yellow Oat Grass.
11 }	.....			

7	}	 7 & 15	{	<i>Cynosurus cristatus</i> ; or,
15	}		{	Crested Dog's-tail Grass.
8	}	 8 & 13	{	<i>Anthoxanthum odoratum</i> ;
13	}		{	or, Sweet-scented Vernal
				Grass.
9	}	 9 & 14	{	<i>Agrostis Canina</i> ; or,
14	}		{	Brown Bent Grass.

14. These names are those given at the Botanical Garden at Kew. But, the same English names are not, in the country, given to these sorts of grass. The Fiorin grass, the yellow-oat-grass, and the brown-bent, are all called couch-grass ; except that the latter is, in Sussex, called red robin. It is the native grass of the plains of Long Island, and they call it red top. The ray-grass is the common field grass, which is, all over the kingdom, sown with clover. The farmers, in a great part of the kingdom, call it bent, or bennet grass ; and sometimes it is called darnel-grass. The crested dog's-tail goes, in Sussex, by the name of Hendon-bent, for what reason I know not. The sweet-scented vernal grass I have never, amongst the farmers, heard any name for. Miss Woodhouse's grass appears, from the plants that I saw, to be one of the sorts of couch-grass. Indeed, I am sure that it is a couch-grass, if the plants I saw came from her seed. My son, who went into Connecticut, who saw the grass growing, and who sent me home a specimen of it, is now in England : he was with me when I cut the grass in Sussex, and he says, that Miss Woodhouse's was a couch-grass. However, it is impossible to look at the specimens of straw and of plat which I have sent you, without being convinced that there is no want of the raw material in England. I was, after first hearing of the subject, very soon convinced that the grass grew in England ; but I had great doubts as to the capacity of our sun.

Those doubts my own experiments have completely removed ; but then I was not aware of the great effect of the scalding, of which, by the way, Miss Woodhouse had said nothing, and the knowledge of which we owe entirely to my son James's journey into Connecticut.

15. Having thus given you an account of the time and manner of cutting the grass, of the mode of cutting and bleaching ; having given you the best account I am able as to the sorts of grass to be employed in this business ; and having, in my former communications, given you specimens of the plat wrought from the several sorts of straw, I might here close my letter ; but, as it may be useful to speak of the expense of cutting and bleaching, I shall trouble you with a few words relating to it. If there were a field of ray-grass, or of crested dog's-tail, or any other good sort, and nothing else growing with it, the expense of cutting would be very little indeed, seeing that a scythe would do the business at a great rate. Doubtless there will be such fields ; but, even if the grass have to be cut by the handful, my opinion is, that the expense of cutting and bleaching would not exceed four-pence for straw enough to make a large bonnet. I should be willing to contract to supply straw at this rate for half a million of bonnets. The scalding must constitute a considerable part of the expense ; because there must be fresh water for every parcel of grass that you put in the tub. When water has scalded one parcel of cold grass, it will not scald another parcel. Besides, the scalding draws out the sweet matter of the grass, and makes the water the colour of London porter. It would be very good, by the by, to give to pigs. Many people give hay-tea to pigs and calves, and this is grass-tea. To scald a large quantity, therefore, would require means not usually at hand, and the scalding is an essential part of the

business. Perhaps, in a large and very convenient farm-house, with a good brewing-copper, good fuel and water handy, four or five women might scald a waggon load in a day ; and a waggon would, I think, carry straw enough (in the rough) to furnish the means of making a thousand bonnets. However, the scalding might take place in the field itself, by means of a portable boiler, especially if water were at hand ; and, perhaps, it would be better to carry the water to the field, than to carry the grass to the farm-house ; for, there must be ground to lay it out upon the moment it has been scalded, and no ground can be so proper as the newly-mowed ground where the grass has stood. The space, too, must be large for any considerable quantity of grass. As to all these things, however, the best and cheapest methods will soon be discovered when people set about the work with a view to profit.

16. The Society will want nothing from me, nor from any body else, to convince it of the importance of this matter ; but, I cannot, in concluding these communications to you, Sir, refrain from making an observation or two on the consequences likely to arise out of these inquiries. The manufacture is one of considerable magnitude. Not less than about five millions of persons in this kingdom have a dress which consists partly of manufactured straw ; and a large part, and all the most expensive part, of the articles thus used, now comes from abroad. In cases where you can get from abroad any article at less expense than you can get it at home, the wisdom of fabricating that article at home may be doubted. But, in this case you get the raw material by labour performed at home ; and the cost of that labour is not nearly so great as would be the cost of the mere carriage of the straw from a foreign country to this. If our own people had all plenty of employment, and that, too, more profitable to them and to

the country, than the turning of a part of our own grass into articles of dress; then it would be advisable still to import Leghorn bonnets; but the facts being the reverse, it is clear that whatever money, or money's-worth things, be sent out of the country in exchange for Leghorn bonnets, is, while we have the raw material here for next to nothing, just so much thrown away. The Italians, it may be said, take some of our manufactures in exchange: and let us suppose, for the purpose of illustration, that they take cloth from Yorkshire. Stop the exchange between Leghorn and Yorkshire, and does Yorkshire lose part of its custom? No: for though those who make the bonnets out of English grass, prevent the Leghorners from buying Yorkshire cloth, they, with the money which they now get, instead of its being got by the Leghorners, buy the Yorkshire cloth themselves; and they wear this cloth too, instead of its being worn by the people of Italy: aye, Sir, and many, now in rags, will be well clad, if the laudable object of the Society be effected. Besides this, however, why should we not export the articles of this manufacture? To America we certainly should; and I should not be at all surprised if we were to export them to Leghorn itself.

17. Notwithstanding all this, however, if the manufacture were of a description to require, in order to give it success, the collecting of the manufacturers together in great numbers, I should, however great the wealth that it might promise, never have done any thing to promote its establishment. The contrary is happily the case: here all is not only performed by hand, but by hand singly, without any combination of hands. Here there is no power of machinery or chemistry wanted. All is performed out in the open fields, or sitting in the cottage. There wants no coal mines and no rivers to assist,

no water-powers nor powers of fire. No part of the kingdom is unfit for the business. Every where there are grass, water, sun, and women and children's fingers ; and these are all that are wanted. But, the great thing of all is this : that, to obtain the materials for the making of this article of dress, at once so gay, so useful, and, in some cases, so expensive, there requires not a penny of capital. Many of the labourers now make their own straw-hats to wear in summer. Poor rotten things, made out of the straw of ripened grain. With what satisfaction will they learn that straw, twenty times as durable, to say nothing of the beauty, is to be got from every hedge ! In short, when the people are well and clearly informed of the facts which I have, through you, Sir, had the honour to lay before the Society, it is next to impossible that the manufactory should not become general throughout the country. In every labourer's house a pot of water can be boiled. What labourer's wife cannot, in the summer months, find time to cut and bleach grass enough to give her and her children work for a part of the winter ? There is no necessity for all to be platters. Some may cut and bleach only. Others may prepare the straw, as mentioned in paragraph 11, of this letter. And, doubtless, as the farmers in Hertfordshire now sell their straw to the platters, grass collectors, and bleachers, and preparers would do the same. So that there is scarcely any country-labourer's family that might not derive some advantage from this discovery ; and, while I am convinced that this consideration has been by no means overlooked by the Society, it has been, I assure you, the great consideration of all with,

Sir,

S.c. &c. &c.

WM. COBBETT.